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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,654	10/22/2003	Akihiro Sano	108421-00081	6499

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EXAMINER	
CHAN, SING P	

ART UNIT	PAPER NUMBER
1734	

DATE MAILED: 04/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/689,654	SANO ET AL.	
	Examiner	Art Unit	
	Sing P. Chan	1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-21 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-12 and 14-17 is/are rejected.

7)☒ Claim(s) 13 and 18-21 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 22 October 2003 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/912,426.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 10/22/03.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 2-4 and 6-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 2, it is unclear from what is the "separatable substrate" is peeled. For the purpose of examination, "a separatable substrate covering said adhesive layer and a peeling device for peeling said separatable substrate from said adhesive layer before said adhering device" will be assumed.

Regarding claim 6, it is unclear if applicant intended to claim the "supporting member for contacting and transferring said powder particles" "to said adhesive layer provided on said base material" where the recitation requires the supporting member to contact the transfer roll to pick up the particles and transfer the particles to the adhesive layer on the base material. This recitation is not supported by the Specification, which recites the support members maintain an uniform contact between the adhesive layer on the base material and the adhered powder layer on the surface of the transfer roll. (See Specification Page 34, lines 18-21) For the purpose of examination, "a supporting member for maintain contact between said transfer roll and said adhesive layer on said base material for contacting and transferring said powder particles, which are adhered

to said transfer roll, to said adhesive layer provided on said base material" will be assumed.

Regarding claim 7, it is unclear if applicant intended to claim the "supporting member for contacting and transferring said powder particles" "to said adhesive layer provided on said base material" where the recitation requires the supporting member to contact the magnetic brush to pick up the particles and transfer the particles to the adhesive layer on the base material. This recitation is not supported by the Specification, which recites the support members maintain an uniform contact between the adhesive layer on the base material and the adhered powder layer on the surface of the magnetic brush. (See Specification Page 37, lines 20-23) For the purpose of examination, "a supporting member for maintain contact between said transfer roll and said adhesive layer on said base material for contacting and transferring said powder particles, which are adhered to said magnetic brush, to said adhesive layer provided on said base material" will be assumed.

Regarding claim 8, it is unclear what it meant by "powder particles are adhered to the surface of carrier particles by rotation of said magnetic roll." For the purpose of examination, "powder particles are adhered to the surface of the base material by rotation of said magnetic roll" will be assumed.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 3-6, 9-12, 14, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chambers et al (U.S. 6,569,494) in view of Ito et al (U.S. 6,096,159).

Regarding claims 1, 14, 16, and 17, Chambers et al discloses an apparatus for making particle-embedded webs. The apparatus includes thermoplastic film unwound from a supply roll with adhesive on one surface (Col 6, lines 63-66), a particle dispenser to dispense particle onto the surface of film with adhesive, i.e. adhering device, a pair of nip rollers drives the particles into the web, i.e. embedding device, and a winding station for winding up the coated film with monolayer of particles. (Col 8, lines 20-26, Col 8, lines 48-53, Col 9, lines 14-30, and Figure 5) Chambers et al is silent as to a removing device for removing excess powder particles. However, providing a particles removing device to remove excess powder particles is well known and conventional as shown for example by Ito et al. Ito et al discloses a method of forming a plano lens. The method includes embedding transparent ball into a transparent substrate with transparent adhesive by depositing and pressing the ball into the adhesive and unnecessary balls, i.e. excess particle, not buried in and held by the adhesive are sucked and removed by an evacuating means. (Col 7, lines 5-7, Col 7, lines 30-33, and 45-48)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an evacuating means to remove excess particle as disclosed by Ito et al in the apparatus of Chambers et al to reduce the amount of labor and working time for removing excess particles. (See Ito et al, Col 5, lines 14-18)

Regarding claim 3, Chambers et al as modified by Ito et al above discloses heated rollers, are provided throughout the apparatus for heating the thermoplastic film and considered to include heating rollers at the position at the peeling device (Col 8, lines 54-65 and Figure 1)

Regarding claim 4, Chambers et al as modified by Ito et al is silent as to the peeling device peels separatable substrate at a specific uniform speed and at a specific angle. However, one reading Chambers et al and Ito et al would appreciate optimizing the process by experimentation to find an optimum conditions or range of speeds and angles for the process.

It would have been obvious to one ordinary skill in the art at the time the invention was made to logically provide a specific uniform speed and a specific angle for peeling the separatable substrate by experimentation in the apparatus of Chambers et al as modified by Ito et al to provide an optimum speed and angle for the process.

Regarding claim 5, Chambers et al discloses the particle dispenser or adhering device includes means for charging the particles to separate the particles and drives the particles onto the surface of the film, which fluidized the particles. (Col 9, lines 38-50)

Regarding claims 6 and 9-12, Chambers et al discloses adhering device includes a hopper, knurled rollers, a screen for controlling the amount of particles is transfer onto the rollers, and a support plate (46), which can be rollers for supporting the film and allow the transfer of particle onto the film. (Col 8, lines 54-65, Col 9, line 66 to Col 10, line 17, and Figure 1)

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chambers et al (U.S. 6,569,494) in view of Ito et al (U.S. 6,096,159) as applied to claim 1 above, and further in view of Raney (U.S. 5,788,802).

Regarding clam 2, Chambers et al is silent as to providing an adhesive on the thermoplastic film and includes a protective cover or film and peeling the film from the thermoplastic film prior to dispensing the particle onto the thermoplastic film. However, providing a UV cured type resin, i.e. adhesive, providing a protective film on the adhesive, and peeling the protective film prior to dispensing or adhering the particle or powder onto the UV cured adhesive is well known and conventional as shown for example by Ito et al. Ito et al discloses a method of forming plano lens. The method includes providing a substrate with UV cured type resin, i.e. adhesive, with a protective film covering the adhesive, peeling the protective film from the adhesive, while performing charge removing blow and dust is sucked, and prior to adhering the powder to the adhesive. (Col 6, line 54 to Col 7, line 6)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an UV cured adhesive and a protective film on the substrate and peeling the protective film from the adhesive layer as disclosed by Ito et al in the apparatus of Chambers et al to provide a resin with sufficient softness to allow easy burying of the particles before photo-curing and sufficient hardness to hold the buried particles after photo-curing. (See Ito et al, Col 6, lines 57-62) Chambers et al as modified by Ito et al is silent as to a peeling device is used for removing the protective film form the adhesive layer. However, providing a peeling station to peel a protective

film or liner from the adhesive on the film is well known and conventional as shown for example by Raney. Raney discloses an apparatus for laminating one or more webs. The apparatus includes a film with adhesive with release films or liners and peeling stations with a peel bar and a rewind stand for peeling the upper release liner from the top surface of the web to expose the adhesive. (Col 7, line 61 to Col 8, line 3)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a peeling station with a peeling bar and a rewind stand to remove the protective liner and expose the adhesive on a film as disclosed by Raney in the apparatus of Chambers et al as modified by Ito et al to provide to allow the protective liner to be readily remove by the peeling station.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chambers et al (U.S. 6,569,494) in view of Ito et al (U.S. 6,096,159) as applied to claim 1 above, and further in view of Kondo et al (U.S. 5,599,648).

Chambers et al as modified above discloses adhering device includes a hopper, knurled rollers, a screen for controlling the amount of particles is transfer onto the rollers, and a support plate (46), which can be rollers for supporting the film and allow the transfer of particle onto the film. (Col 8, lines 54-65, Col 9, line 66 to Col 10, line 17, and Figure 1) Chambers et al as modified by Ito et al is silent as to the adhering device is a magnetic brush. However, using a magnetic brush to apply particles is well known and conventional as shown for example by Kondo et al. Kondo et al discloses a surface forming method. The method includes applying powder to a surface by spraying,

cascading, powder cloud, open chamber, fur brush, print developing, and magnetic brush, are equivalent. (Col 19, lines 45-56)

It would have been obvious to one ordinary skill in the art at the time the invention was made to provide any adhering device such as print developing or magnetic brush as disclosed by Kondo et al in the apparatus of Chambers et al as modified by Ito et al to provide any adhering device, which are equivalents for applying the particles or powders.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chambers et al (U.S. 6,569,494) in view of Ito et al (U.S. 6,096,159) and further in view of Kondo et al (U.S. 5,599,648) as applied to claim 7 above, and further in view of Yamamoto et al (U.S. 4,614,700).

Chambers et al as modified above is silent as to the magnetic brush form spikes on the surface of the magnetic roll with a magnet and feed particles by adhering the particles to the surface of the base material. However, providing a magnet for forming spikes in the shape of brush on the surface of the magnetic roll is well known and conventional as shown for example by Yamamoto et al. Yamamoto et al discloses a method of applying toner particle using magnetic brush with N and S poles of the magnet to provide a layer of developer D in the shape of brush on the surface of the sleeve through the magnetic force. (Col 12, lines 45-50)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a magnet for a forming spikes in the shape of brush on the surface of the magnetic roll as disclosed by Yamamoto et al in the apparatus of

Chambers et al as modified by the combination of references to provide a means to apply the particles uniformly. (See Yamamoto et al, Col 13, lines 1-4)

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chambers et al (U.S. 6,569,494) in view of Ito et al (U.S. 6,096,159) as applied to claim 1, further in view of Fujiwara et al (U.S. 6,383,558)

Chambers et al as modified above does not disclose a removing device comprising water cleaning mechanism and a drying mechanism. However, removing excess powders by washing and drying is well known and conventional as shown for example by Fujiwara et al. Fujiwara et al discloses a method of forming a monolayer powder film. The method includes embedding the powder onto a substrate film with adhesive coating and removing excess powder by washing and drying the substrate, which considered to provide means for washing and drying. (Col 15, lines 8-14 and Col 15, lines 45-55)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to remove excess powder by washing and drying the substrate and providing means to remove excess as disclosed by Fujiwara et al in the apparatus of Chambers et al as modified by Ito et al to ensure a monolayer coating of powder on the adhesive film.

Allowable Subject Matter

9. Claims 13 and 18-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter: The claims recited an apparatus for forming a monolayer powder film on a base material in a shape of an elongated film. The apparatus includes unwinding device for unwinding and feeding a base material in a shape of an elongated film, winding device for winding device for winding the base material, an adhering device for adhering powder particles to an adhesive layer, an embedding device for embedding the powder particles into the adhesive layer, wherein the embedding device includes mechanism for vibrating media (claim 13,) and a container, which vibrates at least in the thickness direction of the base material while maintaining a state which is parallel to the width direction of the base material, the media filled in the container, a supporting member, i.e. a roller, for contacting with the base material, for guiding the base material into the media, and for supporting impulsive force occurring due to vibration of the container and the impulsive force extending in the width direction is added from the thickness direction of the base material using the media. (claim 18) Chambers et al discloses an apparatus for making particle-embedded webs. The apparatus includes thermoplastic film unwound from a supply roll with adhesive on one surface (Col 6, lines 63-66), a particle dispenser to dispense particle onto the surface of film with adhesive, i.e. adhering device, a pair of nip rollers drives the particles into the web, i.e. embedding device, and a winding station for winding up the coated film with monolayer of particles. (Col 8, lines 20-26, Col 8, lines 48-53, Col 9, lines 14-30, and Figure 5) Chambers et al is silent as to a removing device for removing excess powder particles and the embedding device includes mechanism for vibrating media (claim 13,) and a container, which vibrates at

least in the thickness direction of the base material while maintaining a state which is parallel to the width direction of the base material, the media filled in the container, a supporting member, i.e. a roller, for contacting with the base material, for guiding the base material into the media, and for supporting impulsive force occurring due to vibration of the container and the impulsive force extending in the width direction is added from the thickness direction of the base material using the media. (claim 18) A search of the prior art of record did not disclose reference or references with the recited features.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sing P. Chan whose telephone number is 571-272-1225. The examiner can normally be reached on Monday-Friday 7:30AM-11:00AM and 12:00PM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher A. Fiorilla can be reached on 571-272-1187. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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